**Claims**

1. A method of homogeneously, directly and quantitatively measuring molecule modifications, characterized in that the molecule carries a fluorescent dye and that the fluorescence lifetime of said molecule differs from the fluorescence lifetime of the modified molecule.

2. The method as claimed in claim 1, in which the molecule is an organic molecule, in particular a peptide or peptidomimetic, or is an inorganic molecule.

3. The method as claimed in claims 1 and 2, in which the fluorescent dye may be, for example, a coumarine, a fluoresceine, a rhodamine, an oxazine, a cyanine dye.

4. The method as claimed in claims 1 to 3, in which the fluorescent dye is covalently or noncovalently coupled to the molecule. A spacer molecule may be located between the fluorescent dye and the molecule.

5. The method as claimed in claims 1 to 4 for quantifying biochemical assays.

6. The method as claimed in claim 5, in which enzymes can carry out the following modification reactions: phosphorylation/dephosphorylation, sulfation/desulfation, methylation/demethylation, oxidations/reductions, acetylation/deacetylation, amidation/deamidation, cyclization/decyclization, conformational changes, removal of amino acids/peptides/coupling of amino acids/peptides, ring expansion/ring contraction, rearrangements, substitutions, eliminations, addition reactions.

7. The method as claimed in claims 1 to 6 for the use in high throughput screening.

8. A reagent kit comprising fluorescent dye-molecule conjugates and other reagents required for carrying out the assay method as claimed in claims 1 to 6.